

MAIL CHARACTERISTICS STUDIES (Public Version)

Note: Revisions of 3/6/17 are described at the end of this document in **bold**.

I. PREFACE

A. Purpose and Content

USPS-FY16-14 documents the development of a number of volume and parameter estimates used in the preparation of the 2016 ACR. The section titled “RPW by Shape and Indicia” describes the development of revenue, piece and weight estimates by shape and indicia. Standard Mail and First-Class Mail estimates by weight increment are also developed. The “Mail Characteristics” section describes the development of preparation and entry characteristics for Standard Mail flats and letters, and for Periodicals flats. The re-calibration of the First-Class Mail Characteristics Study (Docket No. R2006-1, LR-L-32) is also described in the “Mail Characteristics” section. The “Coverage Factor Updating” section describes the methodology used to update coverage factor parameters for the flats mail processing models.

The methodology is not changed from Docket No. ACR2015.

As requested in Order No. 2741, information is provided in Table 4 of USPS-FY16-14 on the composition of non-CRRTS 5-Digit pallets, disaggregating these pallets between 5-Digit Merged pallets and 5-Digit Presort pallets.

B. Predecessor Documents

USPS-FY15-14, Docket No. ACR2015, USPS-FY14-14, Docket No. ACR2014, USPS-FY13-14, Docket No. ACR2013, USPS-FY12-14, Docket No. ACR 2012, USPS-FY11-14, Docket No. ACR 2011 USPS-FY10-14 in Docket No. ACR2010, USPS-FY09-14 in Docket No. ACR2009, USPS-FY08-14 in Docket No. ACR2008, USPS-FY07-14 filed in Docket No. ACR2007, and Docket No. R2001-1, USPS-LR-J-63 for Density Study

C. Corresponding Non-Public Document

USPS-FY16-NP25

D. Methodology

1. RPW by Shape and Indicia

i. Introduction

Official estimates of revenue, pieces, and weight for First-Class Mail, Periodicals, and Standard Mail are developed by the Revenue, Volume, and Performance Measurement group. The primary data sources for those estimates are the Corporate Business Customer Information System (CBCIS) and the domestic ODIS/RPW sample. The CBCIS draws input from the PostalOne! bulk mail acceptance system. These data sources are also used in this analysis, but the methods used here are somewhat different. The methodology here focuses on the distribution of mail activity by shape. Such distributions are not computed in the official estimates. Since the input data are the same and the methodologies are similar, there is general consistency between the official estimates and those reported here. The similarity of the methods employed here are functionally identical to those used by the Revenue, Volume and Performance Measurement group since the methodology approved in Commission Order No. 354 in Docket No. RM2009-7. As a point of emphasis, the estimates reported here are used only as relative percentages to distribute the official estimates across mail characteristics. No methodological changes have been made since Docket No. ACR 2015.

ii. Methodology Overview for Presort Mail

Estimates of revenue, pieces, and weight by shape for presort First-Class Mail, Periodicals, and Standard Mail (and weight increment for First-Class Mail and Standard Mail) are based on postage statement data from the PostalOne! bulk mail entry system. These estimates form distribution keys to be applied to the reported RPW estimates. Not all Post Offices report through the PostalOne! system. First-Class Mail, Periodicals, and Standard Mail data obtained through the PostalOne! system are stratified by Post Office size and inflated to represent all mail in these classes.

The PostalOne! system is used to record and verify postage at many bulk mail acceptance locations. The system records revenue, pieces, and weight by individual rate elements, which are identified by a five digit numeric code. These codes are referred to as Volume Information Profile (VIP) codes. VIP code information is available for each postage statement submitted at PostalOne! equipped offices. The postage statement also includes the processing category, which is used to determine the shape of all pieces within a transaction.

In Standard Mail, piece and weight information for each VIP code is used to determine the weight increment of the pieces. The average weight of the VIP code within the transaction is used to assign the weight increment.

As mentioned above, the PostalOne! system does not report data for all bulk-entered mail. The non-PostalOne! offices are small relative to PostalOne! offices

in terms of total revenue from bulk-entered mail. Non-PostalOne! offices are represented by PostalOne! offices of similar size. (PostalOne! offices that show wide volume swings during the year are not used to represent non-PostalOne! offices.) This general stratification scheme is used for First-Class Mail, Periodicals, and Standard Mail.

Offices are ranked by an appropriate revenue variable, dependent on the class of mail. (See each class description below). After offices are ranked, they are grouped into strata of similar revenue size. There is an independent stratification of offices for First-Class Mail, Periodicals In-County, Periodicals Outside County, Standard Mail regular, and Standard Mail nonprofit. The total revenue in each stratum is computed from the Trial Balance, the PostalOne! system, and/or estimation methods. The total revenue includes revenue from both PostalOne! and non-PostalOne! system offices.

Once the strata are determined, the PostalOne! office data within each stratum are inflated to the stratum revenue total. The inflated data are then summed across strata to provide estimates for the class or subclass by rate element. The estimates are used to form distribution keys and applied to the official RPW estimates.

iii. Post Office Stratification

a. Overview

In each mail class, the map of Post Office to stratum is defined using a hybrid year's worth of revenue data – FY2015 Q4 through FY2016 Q3. Each year new Post Offices are added to the PostalOne! system. Offices may begin reporting data any time in the year. It is not possible to determine the office size based on part-year data. Generally, new reporting offices are small. In each class, newly reporting offices are assigned to the smallest stratum.

In the stratification process for each class, Post Office revenue excludes U. S. Government mail. Government mail is measured separately, and is not inflated or controlled. This estimate of government activity is added to the final estimates of non-government activity.

b. First-Class Mail

A specific variable is chosen to rank Post Offices by size so that strata may be defined. The most appropriate variable for this purpose would be total First-Class Mail presort revenue. Unfortunately, one segment of this amount, metered and stamped presort revenue at non-PostalOne! offices, is not available in any data source. Metered and stamped revenue accounts in the Trial Balance cover all mail classes and do not distinguish First-Class Mail presort revenue. The ranking and stratification for First-Class Mail therefore is accomplished in multiple steps. First, PostalOne! offices are ranked by the sum of PostalOne! system permit imprint presort revenue plus PostalOne! system metered and stamped presort revenue. PostalOne! offices are then divided into 9 revenue size strata.

Next, average permit imprint revenue within each stratum is computed across PostalOne! offices. These averages are used to assign non-PostalOne! offices to strata. Each non-PostalOne! office is assigned to the stratum that has the PostalOne! average permit imprint revenue closest to its own Trial Balance permit imprint revenue.

c. Periodicals

Since all Periodicals publications use permit imprints, permit imprint revenue reported in the Trial Balance is used to rank offices. These data are available for both PostalOne! and non-PostalOne! offices.

Two separate stratification schemes are developed for Periodicals—one for Outside County and another for In-County rates. In-County and Outside County revenues are reported separately in the Trial Balance. Offices are ranked from largest to smallest revenue and allocated to 6 office size strata for Outside County and 8 office size strata for In-County rates.

d. Standard Mail

Over 94 percent of Standard Mail revenue is submitted via permit imprint. Due to the small effect of metered and stamped mail, all offices are ranked and stratified based on Trial Balance permit imprint revenue. A separate ranking and stratification is made for regular and nonprofit subclasses. Offices are stratified in each subclass into 7 revenue strata.

iv. Postage Statement Data Processing

Transaction records from the PostalOne! system are aggregated into a set of arrays by month. Each record is checked for internal consistency with respect to published rates and weight limits. The arrays contain revenue, pieces (also copies for Periodicals), and weight, indexed by the rate category of mail, the stratum of the office where the mail was entered, the processing category (letters, flats, or parcels), the indicia (permit imprint or metered and stamped), and weight increment for Standard Mail. These arrays reduce the large quantity of transaction level data to the minimum detail required to produce the final estimates.

v. Inflation Process

For all classes, the PostalOne! transactions in each stratum are inflated based on the total revenue in each stratum. The computed revenue control factor is applied to pieces and weight data as well, while maintaining the full array of detail on rate element and other characteristics. Final results are computed by summing the inflated strata results over all strata.

The revenue control in each stratum is developed separately for permit imprint revenues and metered and stamped revenues for First-Class Mail and Standard

Mail. Periodicals has no metered and stamped revenue. Permit imprint revenues are reported individually by class and Post Office in the Trial Balance. There is general consistency between Trial Balance permit imprint revenues and PostalOne! system revenues. For the permit imprint portion of the revenue control, Trial Balance permit imprint revenues are used.

The Trial Balance does not uniquely identify metered and stamped revenue resulting from bulk transactions. These revenues are reported together with metered and stamped revenue for many mail classes. As such, the Trial Balance cannot be used for the metered and stamped portion of the revenue control. At PostalOne! offices, the metered and stamped portion of the revenue control comes directly from the PostalOne! system. At non-PostalOne! offices the metered and stamped portion is estimated.

vi. Estimating Metered and Stamped Revenue at Non-PostalOne! Offices

Metered and stamped revenue estimates at non-PostalOne! offices are obtained using revenue ratios constructed from PostalOne! office revenue and Trial Balance revenue. First-Class Mail and Standard Mail ratios are constructed for each stratum by each Postal quarter. The numerator of the ratio is metered and stamped revenue for a given class of each PostalOne! office in the stratum. This value comes from the PostalOne! system. The denominator of the ratio is Trial Balance metered and stamped revenue for all mail classes for the same PostalOne! offices in the stratum. The ratio is an estimate of the share of all metered and stamped revenue in the stratum that is of that particular class of mail. The estimated metered and stamped revenue of each non-PostalOne! office in the stratum is computed by multiplying their Trial Balance metered and stamped revenue by the stratum revenue ratio.

vii. First-Class Mail Single Piece Mail

Single piece estimates by shape and indicia are needed for First-Class Mail. Single piece input data come from the domestic ODIS/RPW sample data files. These data files include the proper sample inflation factors for each mail piece. All records are inflated using these factors and aggregated to mail category code, shape, and indicia.

vii. Revenue, Piece, and Weight Estimates by Mail Characteristics

a. First-Class Mail

For First-Class Mail, in each quarter, the presort estimates by shape are controlled to revenue, pieces, and weight as reported in the RPW system for each RPW mail category. Single piece volume and weight estimates by indicia are controlled to RPW single piece estimates.

b. Periodicals

The Periodicals control to RPW is more elaborate due to the piece, weight, and discount portions of the rate structure. Pieces from the piece portion and weight from the weight portion are controlled to RPW pieces and weight, respectively.

These same factors are applied to piece portion revenue and weight portion revenue, respectively. These adjusted piece and weight portion revenues plus the revenue discounts are then controlled to the RPW revenue total. Piece portion copies are controlled by the same factor as pieces. Weight portion copies are then controlled to these resulting piece portion copies. Lastly, piece portion weight is controlled to weight portion weight.

c. Standard Mail

The results of the inflation procedure for Standard Mail transactions in the PostalOne! system are used to develop shape and weight increment distribution keys for each rate element. Keys are developed by Postal quarter, for each of revenue, pieces, and weight. The distribution keys for two small rate categories, Standard Mail paid at First-Class Mail rates and Standard Mail paid at Priority Mail rates, are developed from the First-Class Mail and Priority Mail transactions, respectively. The First-Class Mail estimation procedure is described above. The Priority Mail distribution keys are derived from the uninflated Priority Mail PostalOne! transactions.

2. Mail Characteristics Studies

i. Periodicals

a. Stratification

Publications are stratified by size and density using the PostalOne! system mailing statement data. The PostalOne! system data are aggregated by unique six-digit USPS Publication Number, and a database of pieces by rate element and USPS number is constructed. The database is then used to stratify USPS data into 30 strata based on size, density, and use of pallets for the publication number.

The size variable used in the stratification is total Periodicals volume (In-County and Outside County) divided by the publication frequency reported on Form 3526. The stratification variables used to capture mailing density are the proportion of pieces in the mailing paying 5-Digit, FSS, Carrier Route, High Density, and Saturation rates, and the proportion of pieces receiving DDU, DSCF, DFSS, and DADC entry discounts. Based on these variables, publications are divided into five size, two presort, and two entry categories. The five size categories are:

- 0 to 5,000 pieces
- 5001 to 15,000 pieces
- 15,001 to 100,000 pieces
- 100,001 to 300,000 pieces
- Over 300,000 pieces.

The two presort categories are:

- High Density - Publications with 30 percent or more of the pieces paying 5-Digit, FSS, Carrier Route, High Density, or Saturation rates

- Low Density - Publications with less than 30 percent of the pieces paying 5-Digit, FSS, Carrier Route, High Density, or Saturation rates.

The two entry categories are:

- High Drop - Publications with 50 percent or more of the pieces receiving DDU, DFSS, DSCF, and DADC entry discounts
- Low Drop - Publications with less than 50 percent of the pieces receiving DDU, DFSS, DSCF, and DADC entry discounts.

Within Periodicals, some publications prefer the use of sacks over the use of pallets for a variety of reasons such as the perception of better service in sacks. To account for these different preferences, use of pallets is an additional stratification variable.

The use of these four stratification variables generates 40 possible strata. Some cells are populated with few or no publications. This is particularly true of low-density – high drop-ship cells. For this reason, the low-density strata are collapsed across the entry variable to create 30 strata.

b. Data Sources

Data for this study come from Mail.dat files collected through the PostalOne! electronic verification system between October 2015 and September 2016.

Raw Mail.dat files are summarized into three databases, a piece database, bundle database, and container database. The fields recorded in the piece database are:

- Publication ID
- Shape
- Container type (pallet, sack, tray type, loose bundle)
- Container presort level
- Container entry facility type
- Parent container status
- Parent container presort level
- Parent container entry facility
- Piece machinability
- Package (bundle) presort level
- Entry discount given
- Presort rate given
- Number of copies
- Number of pieces
- Weight of pieces.

The fields recorded in the package database are:

- Publication ID
- Shape
- Container type (pallet, sack, tray type, loose bundle)

- Container presort level
- Container entry facility type
- Parent container status
- Parent container presort level
- Parent container entry facility
- Package (bundle) presort level
- Number of packages (bundles)
- Number of barcoded pieces
- Number of non-barcoded pieces
- Number of barcoded copies
- Number of non-barcoded copies
- Weight of barcoded pieces
- Weight of non-barcoded pieces.

The fields recorded in the container database are:

- Publication ID
- Shape
- Container type (pallet, sack, tray type, loose bundle)
- Container presort level
- Container entry facility type
- Parent container status
- Parent container presort level
- Parent container entry facility
- Container size category
- Number of containers
- Number of pieces
- Weight

The information for all but the entry facility type is taken directly from the information recorded in the Mail.dat. The entry facility type is determined using the container entry point ZIP Code, the container destination ZIP Code, and the labeling lists from the Domestic Mail Manual. Each entry point is mapped to a facility, and then the facility type (SCF, ADC, or NDC) is determined. The destination ZIP Code is then compared with the service territory of the entry facility using the DMM labeling lists to determine the entry facility type (OAO, OSCF, OADC, ONDC, DNDC, DADC, DSCF, DFSS, or DDU). For containers entered on parent pallets, the presort level of the parent container is used to determine the entry point of the child container. For example, a 5-Digit sack that resides on an SCF parent pallet will have the entry facility type of DSCF because the sack will first be handled as a sack at the DSCF.

c. Estimation

Publications for which data are available are treated as if they were randomly drawn with a probability of selection proportional to annual volume. Then data

are weighted by the inverse of the probability that the publication was selected.¹ Weighting publications as if randomly drawn serves to reduce bias caused by the self selection of publications into eVS sites. Data in the piece database are weighted by the ratio of annual volume to sample volume by publication. All data from the piece table are aggregated by strata, shape, presort rate, and piece preparation attribute. The piece preparation attribute is a list of preparation and piece characteristics that includes container type, container presort level, container entry facility type, parent container type, parent container level, parent container entry facility type, bundle presort level and piece machinability. The list of possible values for measured characteristics is presented below.

- Container type
 - Pallet
 - Sack
 - 1 foot tray
 - 2 foot tray
 - EMM tray
 - Other/unidentifiable tray
 - Loose bundle
- Container Level
 - CR
 - 5-Digit CRTS
 - 5-Digit
 - 3-Digit
 - SCF
 - FSS Scheme
 - FSS Facility
 - ADC
 - Mixed ADC
- Container entry facility
 - OAO
 - OSCF
 - OADC
 - ONDC
 - DNDC
 - DADC
 - DFSS
 - DSCF
 - DDU
- Parent container type
- Parent container level
 - CR
 - 5-Digit CRTS
 - 3-Digit CRTS
 - 5-Digit
 - 3-Digit

¹ W. G. Cochran, *Sampling Techniques* (1977).

- SCF
- ADC
- Mixed ADC
- NDC
- Mixed-NDC
- Parent container entry facility
 - OAO
 - OSCF
 - OADC
 - ONDC
 - DNDC
 - DADC
 - DSCF
 - DDU
- Bundle level
 - Firm
 - Saturation
 - High Density
 - Carrier Route Basic
 - FSS
 - 5-Digit
 - 3-Digit
 - ADC
 - Mixed ADC
- Piece machinability type
 - AFSM 100 Flat
 - UFSM 1000 Flat
 - Manual Flat
 - Letter

Within presort rate and strata, the distribution across preparation attributes is then calculated. These distributions are weighted together using the PostalOne! volume by shape, presort rate and stratum. The result is then summed across strata to produce estimates of piece volume by preparation characteristic.

Bundle data are weighted by the ratio of annual volume by publication to sample volume by publication. Data are weighted by the inverse of the probability of selection. Bundle counts, pieces counts and weight from the bundle database are aggregated by strata and bundle attribute (container type, container level, container entry facility type, bundle level, and shape). The piece estimates by strata and bundle attribute are used to weight bundle counts, pieces and weight by strata. Weighted values are then summed across strata to generate national estimates of average bundle size (number of pieces per bundle) and average weight by bundle characteristic.

Container data are weighted by the ratio of annual volume by publication to sample volume by publication. Data are weighted by the inverse of the probability of selection. Container counts, pieces counts and weight from the

container database are aggregated by strata and container attribute (container type, container level, container entry facility type, and shape). The piece estimates by strata and container attribute are used to weight container counts, pieces and weight by strata. Weighted values are then summed across strata to generate national estimates of average container size (number of pieces per container) and average weight by container characteristic.

ii. Standard Mail

a. Stratification

Standard Mail transactions are stratified by size, density and entry characteristic using the PostalOne! system mailing statement data. The size variable used in the stratification is total transaction pieces. The stratification variables used to capture mailing density are the proportion of pieces in the mailing paying Basic Carrier Route, High Density, and Saturation rates, and the proportion of pieces receiving destination discounts. Based on these variables, publications are divided into six size and five presort-entry categories. The five size categories are:

- 0 to 5,000 pieces
- 5,001 to 15,000 pieces
- 15,001 to 100,000 pieces
- 100,001 to 200,000 pieces
- 200,001 to 1,000,000 pieces.
- Over 1,000,000 pieces

The five presort-entry categories are:

- Low density - High drop-ship : Transactions with less than 50 percent of pieces paying ECR rates and more than 50 percent of the pieces receiving DDU, DSCF, DFSS or DNDC entry discounts.
- Low Density – Low drop-ship: Transactions with less than 50 percent of pieces paying ECR rates and less than 50 percent of the pieces receiving DDU, DSCF, DFSS or DNDC entry discounts.
- High density : Transactions with more than 50 percent of pieces paying ECR rates but less than 50 percent of pieces paying High Density and Saturation rates.
- Very High density – Low DDU: Transactions with more than 50 percent of pieces paying High Density and Saturation rates but less than 50 percent of pieces receiving DDU entry discounts.

- Very High density – High DDU: Transactions with more than 50 percent of pieces paying ECR rates and more than 50 percent of pieces receiving DDU entry discounts.

b. Data Sources

Data come from Mail.dat files collected through the PostalOne! electronic verification system between October 2015 and September 2016.

All raw files are summarized into three databases, a piece database, bundle database, and container database. The fields recorded in the piece database are:

- Transaction ID
- Shape
- Container type (pallet, sack, tray type, loose bundle)
- Container presort level
- Container entry facility type
- Parent container status
- Parent container presort level
- Parent container entry facility
- Piece machinability
- Package (bundle) presort level
- Entry discount
- Presort rate
- Number of copies
- Number of pieces
- Weight of pieces.

The fields recorded in the package database are:

- Transaction ID
- Shape
- Container type (pallet, sack, tray type, loose bundle)
- Container presort level
- Container entry facility type
- Parent container status
- Parent container presort level
- Parent container entry facility
- Package (bundle) presort level
- Number of packages (bundles)
- Number of barcoded pieces
- Number of non-barcoded pieces
- Number of barcoded copies
- Number of non-barcoded copies
- Weight of barcoded pieces

- Weight of non-barcoded pieces.

The fields recorded in the container database are:

- Transaction ID
- Shape
- Container type (pallet, sack, tray type, loose bundle)
- Container presort level
- Container entry facility type
- Parent container status
- Parent container presort level
- Parent container entry facility
- Container size category
- Number of containers
- Number of pieces
- Weight

The information for all but the entry facility type is taken directly from the information recorded in the Mail.dat or the qualification report. The entry facility type is determined using the container entry point ZIP Code, the container destination ZIP Code, and the labeling lists from the Domestic Mail Manual. Each entry point is mapped to a facility and then the facility type (SCF, ADC, or NDC) is determined. The destination ZIP Code is then compared with the service territory of the entry facility using the DMM labeling lists to determine the entry facility type (OAO, OSCF, OADC, ONDC, DNDC, DADC, DSCF, DFSS, or DDU). For containers entered on parent pallets, the presort level of the parent container is used to determine the entry point of the child container. For example, a 5-Digit sack that resides on an SCF parent pallet will have the entry facility type of DSCF because the sack will first be handled as a sack at the DSCF.

c. Estimation

Data for the small mailing sample are weighted by the inverse of the probability that the finance number was selected.² Then all data from the piece table are aggregated by strata, shape, presort rate, and piece preparation attribute. The piece preparation attribute is a list of preparation and piece characteristics that includes container type, container presort level, container entry facility type, parent container type, parent container level, parent container entry facility type, bundle presort level and piece machinability. The list of possible values for measured characteristics is presented below.

- Container type
 - Pallet
 - Sack

² W. G. Cochran, *Sampling Techniques* (1977).

- 1 foot tray
 - 2 foot tray
 - EMM tray
 - Other/unidentifiable tray
 - Loose bundle
- Container Level
 - CR
 - 5-Digit CRTS
 - 5-Digit
 - 3-Digit
 - SCF
 - FSS Scheme
 - FSS Facility
 - ADC
 - NDC
 - Mixed ADC
- Container entry facility
 - OAO
 - OSCF
 - OADC
 - ONDC
 - DNDC
 - DADC
 - DFSS
 - DSCF
 - DDU
- Parent container type
- Parent container level
 - CR
 - 5-Digit CRTS
 - 3-Digit CRTS
 - 5-Digit
 - 3-Digit
 - SCF
 - ADC
 - Mixed ADC
 - NDC
 - Mixed-NDC
- Parent container entry facility
 - OAO
 - OSCF
 - OADC
 - ONDC
 - DNDC
 - DADC
 - DSCF
 - DDU

- Bundle level
 - Firm
 - Saturation
 - High Density
 - Carrier Route Basic
 - FSS
 - 5-Digit
 - 3-Digit
 - ADC
 - Mixed ADC
- Piece machinability type
 - AFSM 100 Flat
 - UFSM 1000 Flat
 - Manual Flat
 - Letter

Within shape and presort rate and strata, the distribution across preparation attributes is then calculated. These distributions are weighted together using the PostalOne! volume by shape, presort rate and stratum. The result is then summed across stratum to produce estimates of piece volume by preparation characteristic.

Bundle counts, piece counts and weight from the bundle database are aggregated by strata and bundle attribute (container type, container level, container entry facility type, bundle level, and shape). The piece estimates by strata and bundle attribute are used to weight bundle counts, pieces and weight by strata. Weighted values are then summed across strata to generate national estimates of average bundle size (number of pieces per bundle) and average weight by bundle characteristic.

Container counts, pieces counts and weight from the container database are aggregated by strata and container attribute (container type, container level, container entry facility type, and shape). The piece estimates by strata and container attribute are used to weight container counts, pieces and weight by strata. Weighted values are then summed across strata to generate national estimates of average container size (number of pieces per container) and average weight by container type.

3. Coverage Factor Updating

i. Introduction and Overview

This section describes the methodology employed to derive estimates of Coverage Factors for the flats mail processing cost models. Coverage Factors measure the proportion of mail pieces that are processed at a facility with a given piece of sortation equipment. The Coverage Factors are an input into the mail processing cost models and are used to derive the probability that a mail piece will be sorted on each of the various sortation technologies used by the Postal

Service. Several data sources are used to estimate the Coverage Factors. The Postal Service's MAILDIRECTIONv2 file is used to identify the physical location where mail for each 3-Digit zone is processed. MODS data are used to identify the sortation technologies used at each facility. Finally, ODIS data are used to measure the relative volumes processed at each facility.

ii. Development of mappings from Finance Number to Facility ID code

The Postal Service assigns seven-digit Facility ID codes to identify each mail processing facility. These codes are used to communicate, to customers and other Postal Service facilities, the physical location where processing occurs so that mail is transported to the appropriate facility for processing. The MODS data used to assess the available sortation equipment at each facility are reported by Finance Number. As processing activities at more than one physical location can be reported under a single Finance Number, and more than one Finance Number can be used at a single physical location, a database of MODS Finance Numbers and Facility ID codes is needed.

To develop this database, the mailing addresses for each MODS Finance Number were obtained. Then, using the L005 labeling list, each Finance Number was paired with all facilities listed in the ADDRESS file of the Postal Service's Dropship Product that were in the same SCF service territory of the Finance Number.³ Then by manually comparing the address with each Finance Number to the addresses listed in the ADDRESS file, each listed facility was identified as either belonging to the Finance Number or not belonging to the Finance Number.

iii. Estimation of Coverage Factors

Coverage Factors were constructed by using the MAILDIRECTIONv2 file to identify the seven-digit Facility ID of the processing facility for each 3-digit zone. The facility ID was then mapped to the appropriate MODS Finance Number. MODS data were then used to identify the sortation technologies available at the facility. Finally, ODIS flats volumes were weighted across 3-digit zones. The MAILDIRECTIONv2 records and ODIS volumes were chosen to be consistent with mail processing flows. The specific combinations for each estimated Coverage Factor are listed below:

Originating First-Class Mail Bundles

MAILDIRECTIONv2: DSCF Periodicals Flats⁴

ODIS Volume: ODIS originating First-Class Mail volume

Originating Periodicals Bundles

MAILDIRECTIONv2: DADC Periodicals Flats

³ For this purpose, facilities listed only as DDU drop points in the MAILDIRECTIONv2 file were excluded.

⁴ For First-Class Mail, Periodicals DSCF is used as a proxy, since the MAILDIRECTION files list only those classes that are subject to destination entry discounts.

ODIS Volume: ODIS destinating Periodicals volume
 Originating Standard Mail Bundles
 MAILDIRECTIONv2: DNDC Standard Mail Flats
 ODIS Volume: ODIS destinating Standard Mail volume
 Destinating First-Class Mail Bundles
 MAILDIRECTIONv2: DSCF Periodicals Flats⁵
 ODIS Volume: ODIS destinating First-Class Mail volume
 Destinating Periodicals Bundles
 MAILDIRECTIONv2: DSCF Periodicals Flats
 ODIS Volume: ODIS destinating Periodicals volume
 Destinating Standard Mail Bundles
 MAILDIRECTIONv2: DSCF Standard Mail Flats
 ODIS Volume: ODIS destinating Standard Mail volume
 Originating First-Class Mail Pieces
 MAILDIRECTIONv2: Default drop location from MAILDIRECTION
 ODIS Volume: ODIS originating First-Class Mail volume
 Originating Periodicals Pieces
 MAILDIRECTIONv2: Default drop location from MAILDIRECTION
 ODIS Volume: ODIS destinating Periodicals volume
 Originating Standard Mail Pieces
 MAILDIRECTIONv2: Default drop location from MAILDIRECTION
 ODIS Volume: ODIS destinating Standard Mail volume
 Destinating First-Class Mail Pieces
 MAILDIRECTIONv2: Default drop location from MAILDIRECTION
 ODIS Volume: ODIS destinating First-Class Mail volume
 Destinating Periodicals Pieces
 MAILDIRECTIONv2: Default drop location from MAILDIRECTION
 ODIS Volume: ODIS destinating Periodicals volume
 Destinating Standard Mail Pieces
 MAILDIRECTIONv2: Default drop location from MAILDIRECTION
 ODIS Volume: ODIS destinating Standard Mail volume

E. Input/Output

This attachment relies upon the FY 2016 PostalOne! mailing statement database; FY 2016 Mail.dat data from the PostalOne! eVS system; and USPS-LR-L-32 for First-Class Mail.

The Standard Mail, Periodicals and First-Class Mail mail characteristics data are used to calibrate the models developed in USPS-FY16-11. The Standard Mail and First-Class Mail mail characteristics data are used to calibrate the models developed in USPS-FY16-10. The Standard Mail and Periodicals mail characteristics data are used in USPS-FY16-13 and USPS-FY16-12. The estimates of RPW by shape and indicia are used in multiple attachments

⁵ For First-Class Mail, Periodicals DSCF is used as a proxy, since the MAILDIRECTION files list only those classes that are subject to destination entry discounts.

including USPS-FY16-4, USPS-FY16-18, USPS-FY16-19, USPS-FY16-24, and USPS-FY16-26.

II. ORGANIZATION

The tables of the characteristics estimates are presented below and in electronic version in the Microsoft Office Excel workbook 'MAILCHAR16V.xls' . The estimates of RPW by shape and indicia are presented in the Microsoft Office Excel workbook "Shape Indicia FY 2016V.xls". The coverage factor and results are provided in the workbook "Coverage Factors 16m.xls". The programs and workbooks used to estimate these volumes are described in the Program Documentation.

III. PROGRAM DOCUMENTATION

1. Preparation of the Standard Mail Characteristics.

The following programs aggregate Standard Mail mail.dat files from the PostalOne! eVS system by stratum; weight strata by PostalOne! using the mailing statement data program; and control estimates by shape and rate element, to produce estimates of containers, bundles and pieces by container type, container presort level, container entry point, bundle presort level, piece barcode status, and piece machinability.

Program: **roll_to_fss_2016.f**; – FORTRAN Program that aggregates eVS mail.dat and sample by stratum and weights observations using the PostalOne! mailing statement data to produce disaggregated national estimates.

Subroutines:

get_maps.f
ave_bundle.f
ave_con.f
ave_par.f
check_rec.f
results.f

Input: **ContainerTable.txt** - Summary container characteristics by job/observation ID.
PackageTable.txt- Summary package characteristics by job/observation ID.
RateTable.txt – Summary rate characteristics by job/observation ID.
MCSBun.prn – Map of mail.dat bundle level code to estimated level code.
MCSent.prn - Map of mail.dat entry code to estimated entry code.
MCSLevel.prn – Map of mail.dat container level to estimated container level code.
MCSType.prn – Map of mail.dat container type code to estimated container type code.
RPWQ*.prn – Standard Mail piece control values by shape, presort level and entry discount.
map2015.txt – Listing of jobs/observations.
Mcs15.txt.rr – PostalOne! Standard Mail commercial rate mailing statement weights by strata, presort rate level and entry discount.
Mcs15.txt.np - PostalOne! Standard Mail nonprofit mailing statement weights by strata, presort rate level and entry discount.

Output: **Chars.txt.R*** - Estimates of Standard Mail commercial rate pieces and bundles by container type, container presort level, container entry facility type, parent container type, parent container level,

parent container entry, bundle presort level, presort rate element, machinability, and barcode status.

Chars.txt.N* - Estimates of Standard Mail nonprofit rate pieces and bundles by container type, container presort level, container entry facility type, parent container type, parent container level, parent container entry, bundle presort level, presort rate element, machinability, and barcode status.

constats.txt.R* – Estimates of Standard mail commercial rate containers by container type, container level and container entry facility type.

constats.txt.N*– Estimates of Standard mail nonprofit rate containers by container type, container level and container entry facility type.

2. Preparation of the Periodicals Mail Characteristics.

The following programs aggregate Periodicals Mail mail.dat files from the PostalOne! eVS system by stratum; weight strata by PostalOne! using mailing statement data program; and control estimates by shape and rate element, to produce estimates of containers, bundles and pieces by container type, container presort level, container entry point, bundle presort level, piece barcode status, and piece machinability.

Program: **roll_to_DFSS.f**; – FORTRAN programs that aggregate eVS mail.dat by stratum and weights observations using the PostalOne! mailing statement data to produce disaggregated national estimates

Subroutines:

get_maps.f
ave_bundle.f
ave_con.f
ave_par.f
check_rec.f
results.f

Input: **ContainerTable.16.txt** - Summary container characteristics by job/observation ID.

PackageTable.16.txt- Summary package characteristics by job/observation ID.

RateTable.16.txt – Summary rate characteristics by job/observation ID.

MCSBun.prn – Map of mail.dat bundle level code to estimated level code.

MCSent.prn - Map of mail.dat entry code to estimated entry code.

MCSLevel.prn – Map of mail.dat container level to estimated container level code.

MCSType.prn – Map of mail.dat container type code to estimated container type code.

RPWq*.prn – Periodicals flats control volumes by presort rate element and subclass.

pubs.16.draw – Map of observed publication numbers, shape, publication sample weight and subclass.

pubpieces_bypub_fy16.csv – PostalOne! Periodicals 3541 postage statement data by publication number.

p1pub.srt - map of PostalOne! eVS publications.

pubtorate.txt – Map of the universe of publications and subclass.

Output: **Chars.txt.C***, **Chars.txt.N***, **Chars.txt.R*** - Estimates of Periodicals Outside County flat-shaped pieces and bundles by container type, container presort level, container entry facility type, parent container type, parent container level, parent container entry, bundle presort level, presort rate element, machinability, and barcode status.

constats.txt.C*, **constats.txt.N***, **constats.txt.R*** – Estimates of Periodicals Outside County flat-shaped mail containers by container type, container level and container entry facility type.

Program control_16.f – Fortran program to control initial estimates to billing determinants.

Input: **Chars.txt.CL**, **Chars.txt.NP**, **Chars.txt.RR** - Estimates of Periodicals Outside County flat-shaped pieces and bundles by container type, container presort level, container entry facility type, parent container type, parent container level, parent container entry, bundle presort level, presort rate element, machinability, and barcode status.

constats.txt.CL, **constats.txt.NP**, **constats.txt.RR** – Estimates of Periodicals Outside County flat-shaped mail containers by container type, container level and container entry facility type.

C*bd.prn, **R*bd.prn**, **N*bd.prn** – Billing determinant values

Output: **Chars.inf.C***, **Chars.inf.N***, **Chars.inf.R*** - Controlled estimates of Periodicals Outside County flat-shaped pieces and bundles by container type, container presort level, container entry facility type, parent container type, parent container level, parent container entry, bundle presort level, presort rate element, machinability, and barcode status.

constats.inf.C*, **constats.inf.N***, **constats.inf.R*** – Controlled estimates of Periodicals Outside County flat-shaped mail containers by container type, container level and container entry facility type.

3. Preparation of the First-Class Mail Characteristics.

The following set of Microsoft Excel workbooks documents the development of the FY 2016 containerization and bundling estimates of First-Class Mail Presort nonautomation letters and cards; presort flats; automation carrier route letters; and automation carrier route cards. These estimates rely on the methodology and data collected and documented in Docket No. R2006-1, USPS-LR-L-32 and differ only in the use of FY 2016 control values.

Workbook: **NonAutoLetters.xls** – Inflation of nonautomation letter survey observations. Distribution of estimates for unknown tray type, package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **NonAutoLetters.xls** – Inflation of nonautomation letter survey observations. Distribution of estimates for unknown tray type, package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **NonAutoCards.xls** – Inflation of nonautomation card survey observations. Distribution of estimates for unknown tray type, package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **NonAutoFlats.xls** – Inflation of nonautomation flat survey observations. Distribution of estimates for unknown tray type, package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **AutoCRLetters.xls** – Inflation of automation carrier route letter survey observations. Distribution of estimates for unknown tray type and package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **AutoCRCards.xls** – Inflation of automation carrier route card survey observations. Distribution of estimates for unknown tray type and package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **AutoFlats.xls** – Inflation of automation flat survey observations. Distribution of estimates for unknown tray type and package type. Estimation of unknown package sizes.

Input: First-Class MCS Data Entry.mdb.

Workbook: **Inflation Controls.xls** – Computation of office sample inflation factors. Computation of the number of observations inflation factor. Computation of control factor to adjust inflated survey estimates to annual RPW pieces.

Input: Simulated sampling frequencies.

jan10_post1.txt.

Class MCS Data Entry.mdb.

RPW Volumes by rate element.

Links: **NonAutoLetters.xls**, **NonAutoCards.xls**, **NonAutoFlats.xls**,
AutoCRLetters.xls, **AutoCRCards.xls**, **AutoFlats.xls**

Workbook: **ResultsTables.xls** Assembles estimates into report tables.

4. Preparation of First-Class Mail RPW by Shape and Indicia.

The following set of FORTRAN programs and Microsoft Excel workbooks documents the development of the FY 2015 First-Class Mail volumes by shape and indicia.

Summarization of Data

Program: **new_first_16.f** Aggregates and checks the validity of PostalOne! transaction records. Maintains detail by ounce increment up to 16 ounces.

Input: strata9.mo{mo}.map.
vipmap.1st.15.

ratetable.15may

ratetable.16jan

ratetable.16apr.

PostalOne! mailing statement database.

Output: fcm_postalone_data.{mo}.

Program: **cbcis_roll_9.f** - Aggregates first class CBCIS system records to strata, vipcode, and transaction type.

Input: strata9.q{qtr}.map.
vip_first15may.map.
cbcis database.
pcm_1c_strata_cbcis_q{qtr}2016.
pcm_1c_strata_q{qtr}2016.
a41416_strata_q{qtr}2016.
a41416_strata_adj_q{qtr}2016

Output: factors_sm_qtr{qtr}.txt.

Program: **control_shape.f** -Inflates the PostalOne! data using the stratification revenue files. Creates a file by VIP code and ounce increment for revenue, pieces, and weight. Estimates and distributes weight for unknown weight transactions.

Input: factors_sm_qtr{qtr}.txt.
tnctbstr.dat.
pnctbstr.dat.
paic113str.dat
rates.16jan.
rates.16apr
fcm_postalone_data.{mo}.

Output:indicia16q{qtr}.csv.
distkey.1st_q{qtr}.txt.

Workbook: **IndShape{quarter}.xls** – Final distribution to shape and indicia and control to official RPW First-Class Mail values.

Input: indicia16q4.csv.
RPW tables.

5. Preparation of Periodicals RPW by Shape.

The following set of FORTRAN programs and Microsoft Excel workbooks document the development of the FY 2016 Periodicals volumes by shape and indicia.

Program: **Post1_per_qtr.f**- Rolls up PostalOne! mailing statement data by subclass, VIP code, finance number and shape and then inflates to trial balance revenues.

Subroutine: inflate_quarter.f

Input: fins.

rates01262016.srt.

vips.prdcl.new2.

PostalOne! mailing statement database.

Stratamap_2016.prn.

strata.41310.

strata.41316.

Output: good.all.inflated.q{quarter}.r.

Workbooks: **Periodicals Shape {quarter}r.xls**- Distribute official revenue, pieces, and weight estimates to shape.

Input: good.all.inflated.{quarter}r.

RPW tables.

6. Preparation of Standard Mail RPW by Shape.

Program: **std_shape_16.f** - Aggregates PostalOne! Standard mail data by stratum, VIP, shape, and weight increment and month

Input: lead_strata_reg7.map, lead_strata_np7.map – Map of PostalOne! finance numbers and stata.

VIPSR2016.prn(Regular Rate), VIPSNP2016.prn - Map of VIP codes and rates.

PostalOne! mailing statement database.

Output: pmt_std.wi.{month}.

Program: **eststda_16.f** - Inflates the PostalOne! data using the stratification revenue files. Creates a file by RPW mail category code and ounce increment for revenue, pieces, and weight. Estimates and distributes weight for unknown weight transactions.

Input: lead_strata_reg7.map, lead_strata_np7.map.

VIPSR2016.prn/VIPSNP2016.prn .

pmt_std.wi.[month].

Strata.41411.sort.
strata.41411 (Regular),strata.41414(Nonprofit).

Output: stda.{quarter}.csv.

Revisions of 3/6/17: The four volume figures presented in cells B19, B20, D19, and D20 in the 'STANDARD ENTRY PROFILE' worksheet in the USPS-FY16-14 mail characteristics file ('MAILCHAR16V.xlsx') were incorrect. The volume figures in cells B19 and B20 were transposed. In addition, the volume figures in cells D19 and D20 were transposed. The correct volume figures can be found in those same cells in the 'STANDARD ENTRY PROFILE' worksheet in the revised version of the file 'MAILCHAR16V.Rev.3.6.17.xlsx'. The revised cells and the worksheet tab are all highlighted in yellow. The Excel file being revised on this date ('MAILCHAR16V.Rev.3.6.17.xlsx') is only one of many files originally submitted as part of USPS-FY16-14, and the other files in the folder that remain unchanged have not been included in this submission.